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Sritharan et al.

(54) WIND TURBINE TOWER SYSTEM

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(56) References Cited

U.S. PATENT DOCUMENTS

6,467,233 B1	10/2002	Maliszewski et al.
7,739,843 B2	* 6/2010	Cortina-Cordero 52/223.5
7,765,766 B2	* 8/2010	Gomez et al 52/745.04

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	7,770,343	B2	8/2010	Montaner Fraguet et al.
	7,993,107	B2 *	8/2011	Gevers 416/244 R
	8,256,174	B2 *	9/2012	Irniger et al 52/245
	8,511,013	B2 *	8/2013	Voss 52/223.5
200	06/0213145	A1	9/2006	Haller
200	06/0273597	A1	12/2006	Rashidi
200	09/0016897	A1	1/2009	Olgaard
20	1/0133475	A1*	6/2011	Zheng et al 290/55

FOREIGN PATENT DOCUMENTS

WO WO 2006/133122 A2 12/2006

OTHER PUBLICATIONS

Lohaus, L. et al., "High-cycle Fatigue of "Ultra-High Performance Concrete" and "Grouted Joints" for Offshore Wind Energy Turbines", Proceedings of the Euromech Colloquim, 2007.

* cited by examiner

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(57) ABSTRACT

A wind turbine tower system is provided which includes a wind turbine tower with a height of at least 80 meters, said wind turbine tower comprised of ultra-high performance concrete and a wind turbine mounted on the wind turbine tower. The wind turbine tower system may include a vertically extending lattice structure formed of a plurality of modular components, wherein each of said plurality of modular components being pre-stressed. The tower may also be formed using UHPC shells.

6 Claims, 7 Drawing Sheets

